

the multi-window function allowing the overlapping windows. Such a display mode will be useful in displaying the references and dictionaries along with the document to be read, or in displaying a plurality of figures and tables together.

Furthermore, the electronic pen 10 can be utilized for the purpose other than the menu selection as described above. Namely, by incorporating a letter recognition unit 25 between the pressure sensor 15 and the control unit 13 in the display device 100, it becomes possible to carry out the command input or the handwriting memo input using the electronic pen 10.

For example, in order to enter the underline or the handwriting memo on the displayed document as shown in FIG. 17, either the letter recognition is carried out for the entered pen input, or the pen stroke is stored as it is. In a case the document is the read only document, the page and the position within that page of the entered pen input must be added to the recognition result or the pen stroke data, and stored in the appropriate file which is linked with that document. On the other hand, in a case the document is a rewritable one in which the addition of the entered pen input can change the positions of the parts of the document, the following processing according to the flow chart of FIG. 18 becomes necessary.

Namely, at the step 1901, the data of the absolute position on the display screen for the entered pen input is read, and at the step 1902, the document content displayed at that position is obtained. Then, at the step 1903, the memo and its relative position with respect to the document content are written into the document memory 14 connected with the document content by the pointer. Here, the relative position may be fixed to a predetermined default setting such as below the letters, instead of specifying it each time.

For example, when the memo consisting of "XYZ" and an insertion mark is to be written between letters "A" and "B" of the displayed letter series "ABC" as shown in FIG. 19A, the content of this memo is connected with the letter "A" portion of the document by a pointer as shown in FIG. 19B and recorded. The handwriting memo can be subjected to the letter recognition in order to record the recognition result, or recorded as it is as an image input.

In FIG. 19B, the relative position is indicated by a small circle at a foot of the letter "A". In addition, the link is provided for the letter "B" as well, in order to be able to cope with the subsequent deletion of the letter "A". Here, the memo is usually added in order to modify the document content, so that it is not so infrequent for the letters "A" and "B" in relation to which the memo is recorded are going to be deleted later on. For this reason, unless the user indicates that there is no need to preserve the memo, the position of the memo is going to be shifted automatically when the letters "A" and "B" are deleted. For example, the position of the memo can be shifted to a position at a foot of the letter "C" in a case the letters "A" and "B" are deleted.

Also, in the above explanation, the letter series "XYZ" is treated collectively, but the underline or the memo letter series may be recorded in parts with respect to the nearest displayed document letters. For example, the underline drawn below the displayed document letter series "ABC" can be recorded in three parts with respect to each of the letters "ABC". This provision is especially useful for the underline as the significance of the underline is likely to be preserved even when there is a long memo added to the underlined letter series.

In a case of reading out the document with the memo or

the underline attached, the default setting is to read the attached memo or underline along with the document. However, in a case it is undesirable to read the attached memo or underline, it is also possible to display the document alone, without displaying the attached memo or underline. In such a case, it is also possible to indicate the presence of the memo or underline on the displayed document by means of a prescribed marks such as star marks shown in FIG. 20.

In this embodiment, the display device 100 uses a liquid crystal display with a background lighting for each of the display screens A and B, but the other planar display such as a plasma display may be used instead. It is also possible to employ the different types of planar displays for the left and right display screens A and B. For example, one display screen may adopt a color liquid crystal display while the other display screen adopts a monochromatic liquid crystal display which is cheaper than the color liquid crystal display. In this case, in the separate mode, when the code for requiring the color display provided in the document data is detected, or when the color page is recognized from the recording format of the document, the color page can be allocated to the side adopting the color liquid crystal display. Also, in a case the letter portions are monochromatic but the figure portions are colored, each page of the document can be provided with a page header indicating the presence or absence of the colored portion within each page, so that the page containing the colored portion can be allocated to the side adopting the color liquid crystal display. For the document without such a page header, the presence or absence of the colored portions can be checked before the actual display of each page, and then this information is recorded in the document data in the document memory 14 for the sake of the subsequent display occasions. Alternatively, the document data to be stored in the document memory 14 may be subjected to this checking operation in advance, either by using this display device 100 or the other device capable of carrying out the same operation, such that there is no need to carry out this checking operation at a time of actual display and therefore the proper display can be obtained more quickly.

In addition, it is also possible to use the display screen equipped with a pressure sensor for the sake of the pen input only on one side, in order to reduce the cost of the display device 100. In such a case, however, when the pen input on the document is required, the document must be moved to the area equipped with the pressure sensor.

It is to be noted that the display device 100 of this embodiment can handle the documents in the lateral writing as well as the documents in the vertical writing.

It is also to be noted that many modifications and variations of the above embodiments may be made without departing from the novel and advantageous features of the present invention. Accordingly, all such modifications and variations are intended to be included within the scope of the appended claims.

What is claimed is:

1. A display device, comprising:

document memory means for storing documents to be displayed;

at least two display screens for displaying the documents stored in the document memory means; and

display control means for controlling displays of the documents on the display screens to be in a predetermined linked mode in which the displays on the display screens are linked together to display consecutive pages